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<p>(21) International Application Number: PCT/NL90/00098 (22) International Filing Date: 19 July 1990 (19.07.90) (30) Priority data: 8901866 19 July 1989 (19.07.89) NL (71) Applicants (for all designated States except US): NORMA BOXMEER B.V. [NL/NL]; Ir. Wagterstraat 15, NL-5831 AZ Boxmeer (NL). MATRASSENFABRIEK EASTBORN B.V. [NL/NL]; P.O. Box 62, NL-7680 AB Vroomshoop (NL). OOST SLAAPCOMFORT B.V. [NL/NL]; P.O. Box 4176, NL-1009 AD Amsterdam (NL). (72) Inventor; and (75) Inventor/Applicant (for US only): JURRIUS, Hermanus, Johannes, Wilhelmus, Bernardus [NL/NL]; De Nachtegaal 1, NL-2104 BN Heemstede (NL).</p>		<p>(74) Agent: SMULDERS, Th., A., H., J.; Vereenigde Octrooibureaux, Nieuwe Parklaan 107, NL-2587 BP The Hague (NL). (81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE*, DE (European patent)*, DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent), US. Published With international search report. In English translation (filed in Dutch).</p>
<p>(54) Title: MATTRESS OR MATTRESS SUPPORTING STRUCTURE</p> <div data-bbox="446 1186 1177 1753"> </div> <p>(57) Abstract</p> <p>Mattress or mattress supporting structure (3) comprising a plurality of slats (7) interconnected by means of flexible material, the slats being each supported by a spring means (8), and this combination being integrated in a synthetic foam composition (9), and in which the slats (7) or the resilient means (8) supporting them are readily replaceable. A variant is formed by coupling the resilient means and the synthetic foam composition to form a single resiliently elastic strip (20).</p>		

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Title: Mattress or mattress supporting structure

This invention relates to a mattress or a mattress supporting structure comprising a plurality of slats interconnected by means of flexible material. It is an object of the invention to render such a slatted base, which is known per
5 se, more flexible.

To this effect, the mattress or mattress supporting structure is characterized in that the slats are each supported by a spring means and this combination is integrated in a resilient mass, such as, for example, foam plastic.

10 By mounting the slats and/or the resilient means so that they are readily replaceable, it is possible, in a simple manner, starting from a basic number of parts, to bring about a mattress or mattress supporting structure with a unique resilient character.

15 This last can also be effected by using slats and/or spring means having different spring characteristics.

Yet another possibility consists in making the slats and/or the resilient means lengthwise with variable spring characteristics.

20 The whole may be housed in a cover.

In a further elaboration of the invention, the mattress or mattress supporting structure may consist of a plurality of parts constructed according to the above, and these parts may be hingedly connected together for easy adaptation to beds
25 whose supporting surface consists of a plurality of parts which can be set at an angle to each other.

Furthermore, the supporting structure may be supported by a rigid frame. This rigid frame may be connected through a resilient connection to a bed frame disposed outwardly of said rigid frame.

5 Furthermore, the mattress or mattress supporting structure may be covered in known manner by a mattress protecting underlay.

In accordance with a different embodiment of the invention, the bed is characterized in that the flexible material
10 and the spring means are coupled to form one single resiliently elastic strip.

In illustration of the invention, one embodiment of a bed provided with a mattress or mattress supporting structure will now be described, by way of example, with reference to the
15 drawings. In said drawings:

Fig. 1 shows a perspective view of the bed according to the invention, but with the parts shown in spaced relationship to each other;

Fig. 2 shows, on a larger scale, the detail indicated by
20 A in Fig. 1;

Fig. 3 shows a side-elevational view of a second embodiment of the bed according to the invention;

Fig. 4 shows, on an enlarged scale, a cross-sectional view, taken on the line IV-IV of Fig. 3;

25 Fig. 5 shows a perspective, partially exploded view similar to Fig. 1 of a different embodiment of the mattress supporting structure according to the invention; and

Fig. 6 shows, on an enlarged scale, a detail of the structure of Fig. 5.

According to the drawings, a bed according to the invention includes a surrounding structure or bedstead 1 with legs 2. In the surrounding structure, a mattress supporting structure 3 can be disposed, on the top of which a mattress 4 can rest. As best shown in Fig. 1, the mattress supporting structure 3 is composed of a plurality of parts 5 interconnected by means of hinges 6.

As clearly shown in Fig. 2, each part 5 consists of a plurality of slats 7, each supported by a resilient member 8. Each combination of slat and resilient element is received in a resilient, in this case foam plastic composition 9. The mattress supporting structure is covered with a mattress protecting underlay 10. The mattress supporting structure is, as a whole, housed in a cover not shown in Figs. 1 and 2.

This cover is present in the embodiment shown in Figs. 3 and 4 and designated by 11.

As shown by these latter two figures, the mattress supporting structure is in turn supported by a support 12 which by means of a resilient hinge 13 is connected to a bed frame 14. For the rest, the embodiment of Figs. 3 and 4 corresponds fully to that according to Figs. 1 and 2, so that it will not be described further herein.

Instead of bed frame 14, use can be made of a tuck-in edge fixedly connected to support 12.

The embodiment illustrated in Figs. 5 and 6 differs from that shown in Figs. 1-4 to the extent that, in the second embodiment, the slats are supported by a resilient plastic strip 20 which in essence is a combination of the resilient member 8 and the plastic foam composition 9 in the arrangement of Figs. 1-4. The plastic strip 20 is provided with recesses 21 for receiving slats 7.

Plastic strip 20 is, in turn, received in a U-shaped section 22 essentially consisting of a plurality of parts 23 articulated together, as best shown in Fig. 6.

To this effect, the resilient members 23 are connected together by a joint 24 constructed and arranged so that the axis of rotation is in each case at the top of the U-shaped support. It is thus ensured that the support members can pivot relative to each other into a desired raised position. As, however, there should also be a possibility for the parts to move in a different direction relative to each other, the joints are V-shaped opening downwardly, so that this joint can also move upwards relative to the U-shaped section.

The U-shaped sections 22 are carried by supports 25 interconnected by means not shown to jointly form a bed frame.

Fig. 6 additionally shows, schematically, known per se resiliently operable rods for moving parts 23 relative to each other.

It will be clear that a large number of modifications are possible within the scope of the invented idea.

CLAIMS

1. Mattress or mattress supporting structure comprising a plurality of slats interconnected by means of flexible material, characterized in that the slats are each supported by a spring means and this combination is integrated in a synthetic
5 foam composition.
2. Mattress or mattress supporting structure as claimed in claim 1, characterized in that the slats or the spring means supporting them are readily replaceable.
3. Mattress or mattress supporting structure as claimed in
10 claim 1 or 2, characterized in that the slats and/or the spring means supporting the slats have different spring characteristics.
4. Mattress or mattress supporting structure as claimed in claim 1, 2 or 3, characterized in that the slats and/or the
15 spring means supporting the slats have different spring characteristics in the longitudinal direction.
5. Mattress or mattress supporting structure as claimed in one or more of the preceding claims, characterized in that the whole is housed in a cover.
- 20 6. Mattress or mattress supporting structure as claimed in one or more of the preceding claims, characterized in that the mattress supporting structure consists of a plurality of parts constructed according to claims 1-4, and these parts are hingedly connected together.

7. Mattress or mattress supporting structure as claimed in one or more of claims 1-5, characterized in that the mattress or mattress supporting structure is supported by a rigid frame.

5 8. Mattress or mattress supporting structure as claimed in claim 7, characterized in that the rigid frame is connected through a resilient connection to a bed frame disposed outwardly^{en} of said rigid frame.

9. Mattress or mattress supporting structure as claimed in
10 one or more of the claims, characterized in that the supporting structure is covered in known manner by a mattress protecting underlay.

10. Mattress or mattress supporting structure as claimed in one or more of the preceding claims, characterized in that the
15 flexible material and the spring means are coupled to form one single resiliently elastic strip (20).

11. Mattress or mattress supporting structure as claimed in claim 10, characterized in that said resiliently elastic strip (20) is received in a U-shaped section (22) forming part of a
20 frame supporting the mattress or mattress supporting structure.

12. Mattress or mattress supporting structure as claimed in claim 11, characterized in that said U-shaped section consists of a plurality of articulated parts.

25 13. Mattress or mattress supporting structure as claimed in claim 12, characterized in that the axes of rotation of the

joints are at the top of the U-shaped sections or section parts in the mounted condition thereof.

14. Mattress or mattress supporting structure as claimed in claim 12 or 13, characterized in that the U-shaped supporting parts are beveled at the joints so that in the straight condition of the parts a downwardly open V-shaped construction is formed at the joint axes, so that the parts can also be moved relative to each other in such a manner that the joint axis can move upwardly relative to the remaining part of the U-shaped support.

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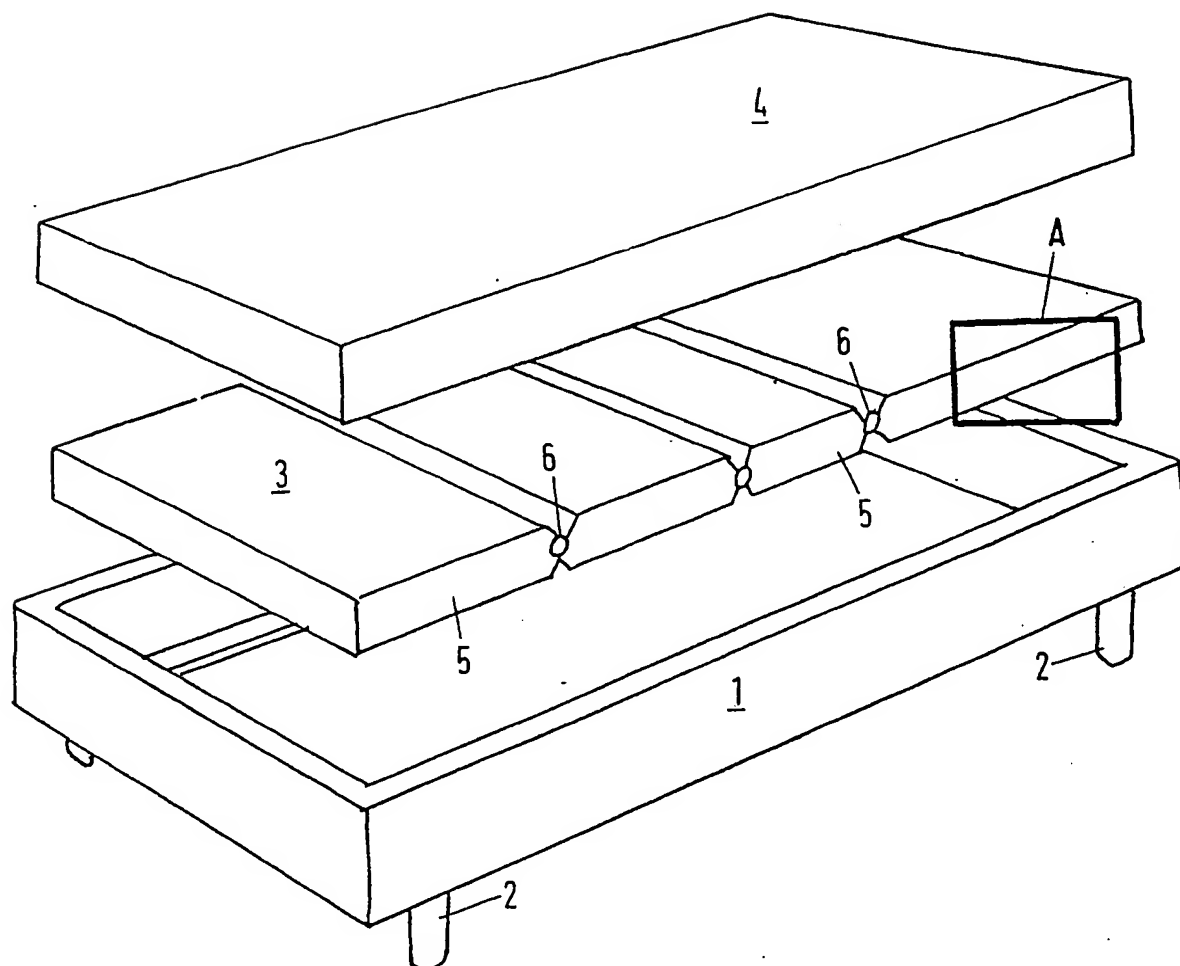


FIG. 1

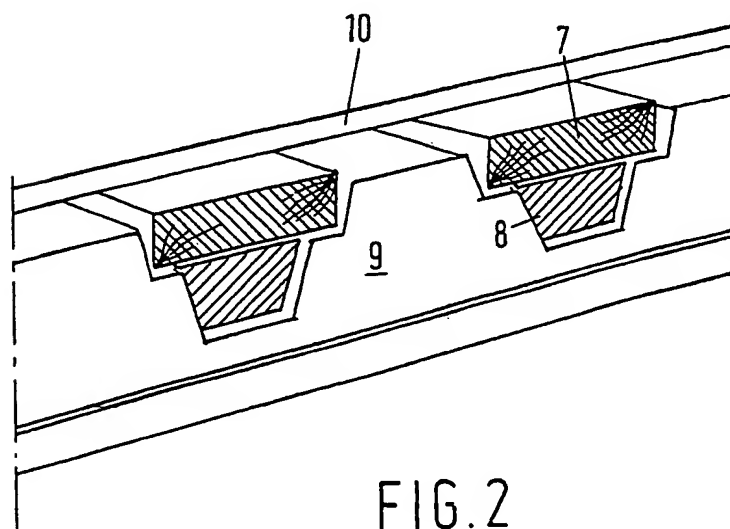


FIG. 2

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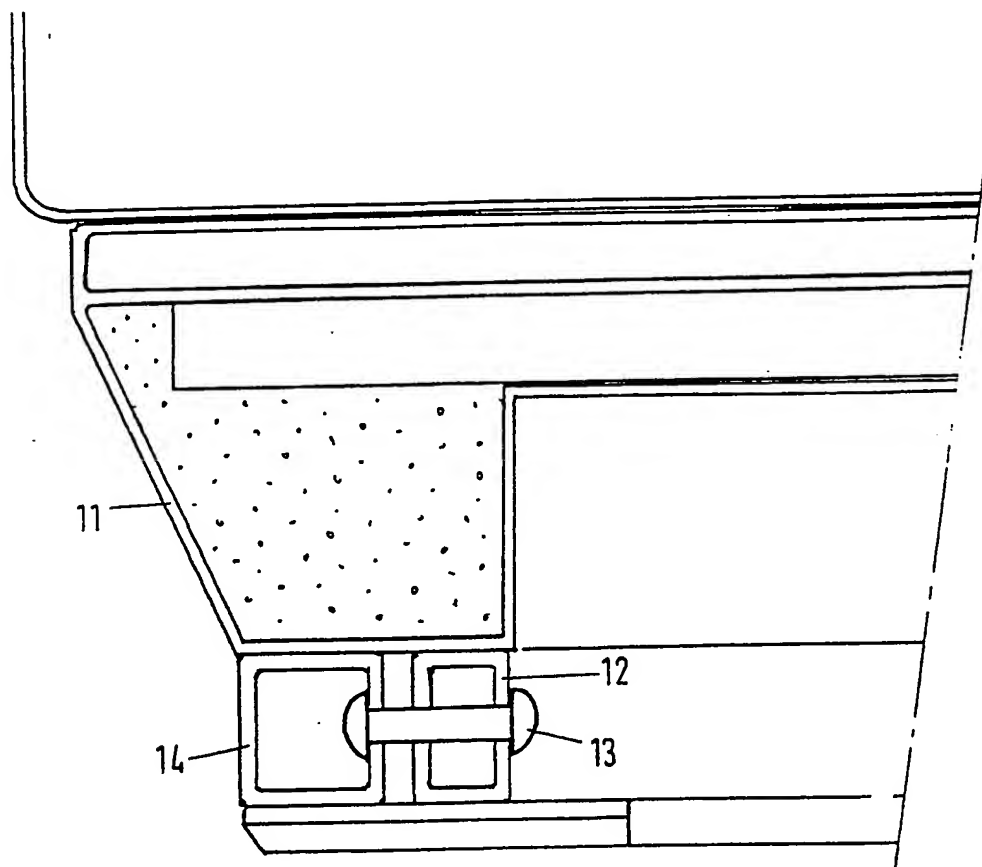


FIG. 4

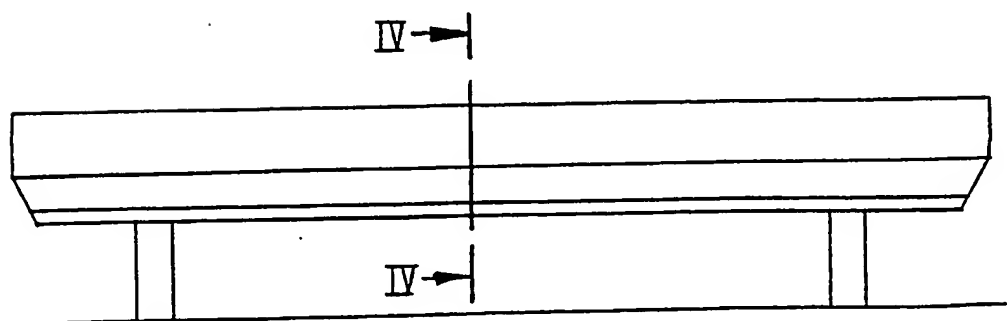


FIG. 3

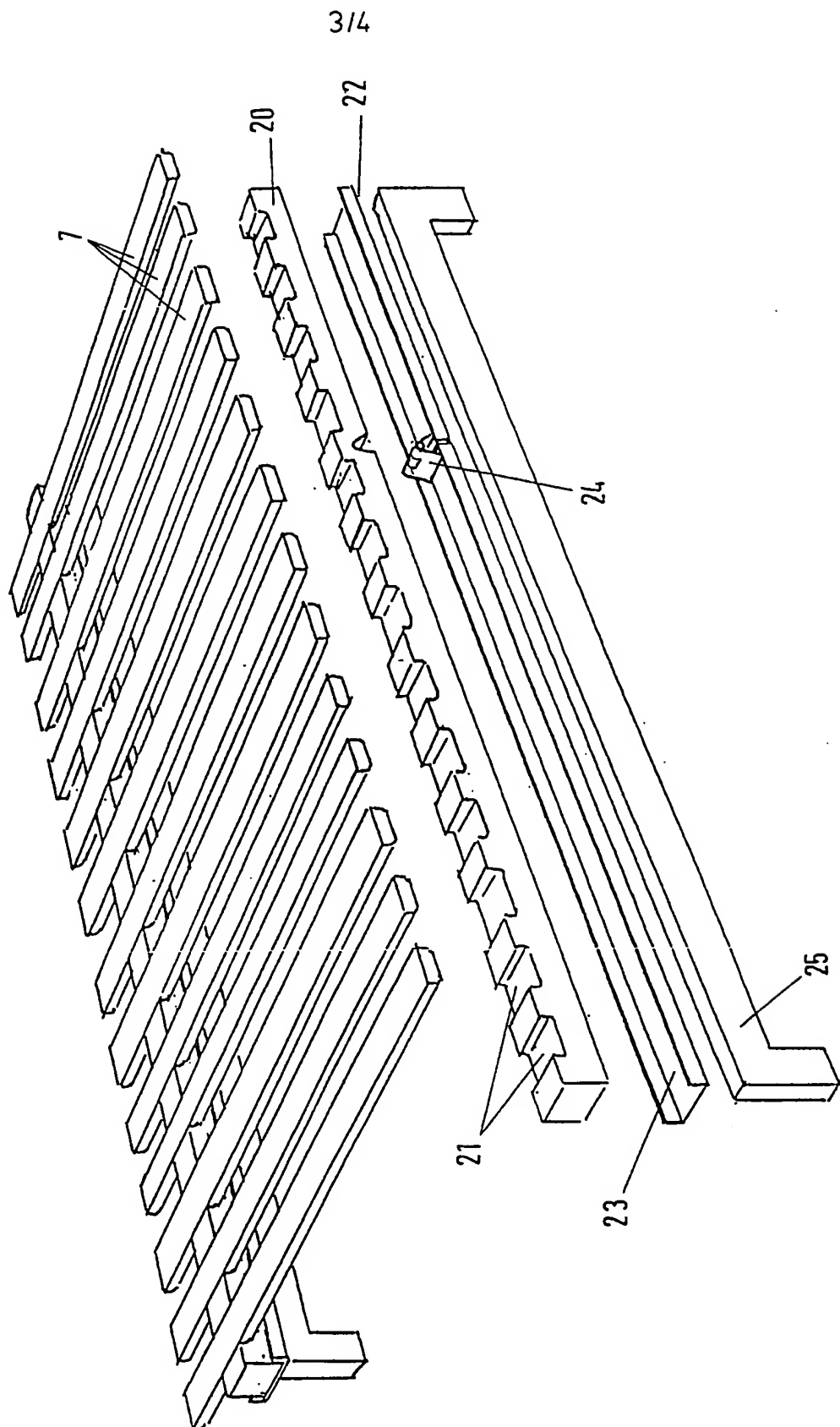


FIG.5

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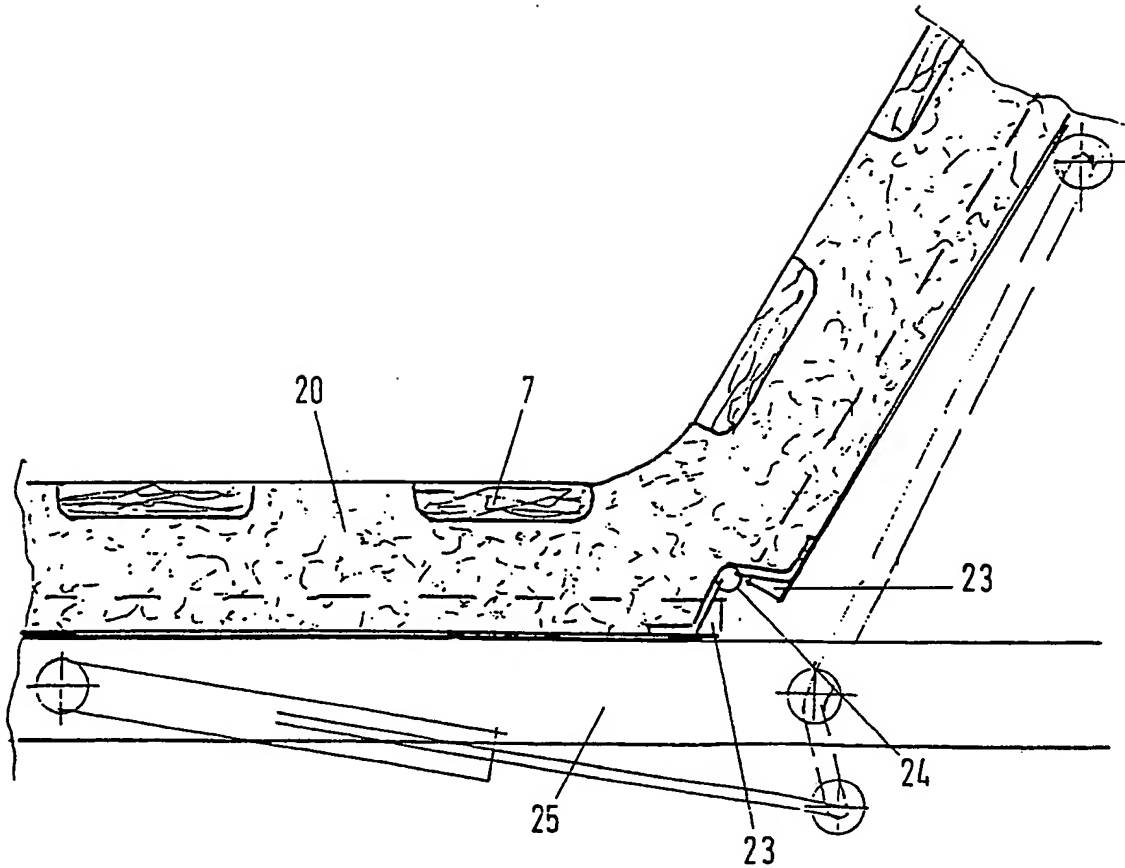


FIG. 6

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/NL 90/00098

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 A47C23/06 ; A47C31/12		
II. FIELDS SEARCHED		
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Int.Cl. 5	A47C	
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III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
Y	EP,A,0186264 (GRIFFIN) 02 July 1986 see column 1, line 50 - column 2, line 12; figure 1	1
A	---	2, 5, 7, 10
Y	EP,A,0211772 (MERINOS) 25 February 1987 see page 3, line 8 - page 5, line 25 see page 6, lines 4 - 7 see page 7, lines 17 - 33; figures	1
A	---	6, 7, 10
A	EP,A,0011755 (PRB) 11 June 1980 see page 3, line 34 - page 4, line 14; figures 3-7	2, 3, 4
A	FR,A,2490473 (MARTINEZ) 26 March 1982 see page 2, line 37 - page 3, line 13; figures	10, 11, 12
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
26 OCTOBER 1990	14. 11. 90	
International Searching Authority	Signature of Authorized Officer	
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ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

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FR-A-2490473	26-03-82	None	